SUMMARY OF PUBLIC COMMENTS ON THE 2010 DRAFT 303(D) LIST AND IDEM RESPONSES

Indiana Department of Environmental Management (IDEM) published the 2010 draft 303(d) list in the *Indiana Register* and on IDEM's web site on October 28, 2009 to request public comment on its draft 2010 303(d) list. Pursuant to IC 13-18-2-3, which requires a 90-day public comment period, this comment period was to end on January 26, 2010. However, in response to requests from the public for additional time in which to prepare comments, IDEM extended the public comment period until February 26, 2010, allowing an additional 31 days for the public to provide input on the 2010 Draft 303(d) List. IDEM received comments from the following parties:

Alcoa Incorporated (ALCOA)
Alliance for the Great Lakes (AGL)
Gary W. Moody (GM)
Hoosier Environmental Council (HEC) - This includes the following groups who submitted their comments under HEC:
- Tippecanoe Watershed Foundation
- Friends of the Limberlost
- Sierra Club, Hoosier Chapter
- NICHES Land Trust
- Save our Rivers
- Save the Valley
- Heartwood
- Hoosier Canoe Club
- Wildcat Guardians
- Banks of the Wabash
- Valley Watch

Indiana Coal Council (ICC)
Indiana Utility Group (IUG)
Indiana Wildlife Federation (IWF)
J. F. Shroeder (JFS)
Leslie Patterson (LP)
Save the Dunes Council (SDC)
Shipshewana Community Lake Improvement Association (SCLIA) - This includes the following individuals who submitted identical comments:
- Bradley Clark
- Denny Davis
- Nicholas R. Davis
- SD and Shawn Kelly
- Duane Lambright
- Earl Mast
- Martin L. Miller
- Peggy Rahn
- Donnie R. Shaffer
- Howard Slater
- Sue Smith-Weideman
- Steve Weideman

Comments regarding IDEM's Consolidated Assessment and Listing Methodology (CALM)

IDEM's use of metals criteria in 305(b) assessments, 303(d) listing decisions and total maximum daily load development – total versus dissolved.

IDEM: For the purposes of this responsiveness summary, IDEM has summarized and addressed those comments that reflect the broader technical issues regarding IDEM's use of metals criteria in its 305(b) assessment and 303(d) listing processes and TMDL development. The comments are summarized as follows:

Comments:

- Total Aluminum overestimates the biologically available portion of aluminum. (ALCOA)
- No technical basis exists for the water quality criteria for aluminum and iron. (ICC)
- IDEM improperly applied the total iron and total aluminum criteria. (ICC)
- The aluminum criterion is inappropriately low and unreasonable. (ICC)

IDEM Response: Interested parties are encouraged to review the full text comments provided for the draft 303(d) list for details regarding the commenters' concerns.

Indiana's Water Quality Standards (WQS) state that the dissolved metal number is recommended for use in measuring compliance with WQS for aquatic life. IDEM agrees that using a total aluminum value can potentially overestimate the bioavailable fraction of aluminum in ambient waters. For some metals, like aluminum, the science does not yet exist to distinguish with any certainty between the dissolved fraction of the metal, which is toxic to aquatic life and the remaining portion that is not. Given the difficulties associated with determining the dissolved fraction present in the total aluminum concentration, IDEM will not finalize the proposed addition of 112 impairments for total aluminum to the 2010 draft 303(d) list. Additionally, IDEM will use dissolved metals criteria to assess water quality impairments except where more conservative approach is necessary to ensure adequate protections as may be done for mercury.

Technical issues regarding IDEM's derivation and use of the Tier I and Tier II aquatic life use criteria in 305(b) assessments, 303(d) listing decisions and total maximum daily load development

IDEM: Tier I criteria are calculated in accordance with Method 1 provided in Indiana's Water Quality Standards (WQS)[1]to provide aquatic life criteria for toxic substances for which criteria are not specifically articulated as a surface water quality criterion in Tables 6-1 through 6-3 of the WQS. Tier I criteria are calculated with sufficient data to make them equivalent to promulgated surface water quality criterion. Tier II values are calculated in accordance with the Method 2 provided in the WQS. However, they are calculated using a smaller data set. To simplify the following discussion, Tier I criteria and Tier II values will both be referred to as "derived criteria".

The following discussion provides a summary of the overarching issues as expressed in public comments received on the 2010 draft 303(d) list regarding IDEM's use of derived criteria along with IDEM's responses to these larger issues and the Agency's decision not to use derived criteria in its 305(b) assessment and 303(d) listing processes and TMDL development. Interested parties are encouraged to review the full text comments for more detail on the specific issues raised.

[1] 327 IAC 2

Legal issues regarding IDEM's derivation and use of the Tier I and Tier II aquatic life use criteria in 305(b) assessments, 303(d) listing decisions and total maximum daily load development

IDEM: For the purposes of this responsiveness summary, IDEM has summarized and addressed those comments that reflect the broader legal issues regarding IDEM's use of derived criteria in its 305(b) assessment and 303(d) listing processes and TMDL development.

Comment: The Tier I criterion for aluminum was never promulgated by the Board but was developed and adopted by IDEM without any apparent opportunity for public comment or input. Tier I and Tier II criteria and the criterion for aluminum were publicly announced for the first time in the Notice of Public Comment for the 303(d) list as part of the basis for its impairment determinations without providing any prior opportunity for public review (ALCOA).

IDEM Response: The purpose of IDEM's notice of public comment period for the draft 2010 303(d) list is to provide opportunity for comment on the proposed 303(d) list and listing methodology. IDEM, upon the request of interested parties, extended its public comment period for the 303(d) list, allowing an additional 31 days for interested parties to submit their comments.

Comment: Indiana's Water Quality Standards are standards formally promulgated by the Indiana Water Pollution Control Board as "rule" after undergoing and complying with the full range of due process requirements required by Indiana Law, including such safeguards as two 30-day public comment periods, a duty to evaluate and respond to comments and a rulemaking hearing before the Water Board. The application of derived water quality criteria violates state administrative procedures. The aluminum values used in the draft 303(d) impairment determination are not "water quality standards" promulgated by the Water Board. (ALCOA)

IDEM Response: Indiana's WQS include narrative criteria along with numeric criteria and methods for deriving them. The derived criteria used in making impairment decisions were developed in accordance with 327 IAC 2-1-8.1 and 8.2. These rules are part of Indiana's WQS and as such, have been promulgated in accordance with Indiana law. The purpose and intent of 327 IAC 2-1-8.1 and 8.2 is to provide a process by which IDEM can develop scientifically defensible aquatic life criteria to ensure that the concentration of a substance or combination of substances does not become acutely toxic or produce chronic effects on aquatic organisms.

ALCOA states, based on IC 4-22-2, that derived criteria should be promulgated prior to their use in 305(b) assessments and 303(d) listing decisions, and for TMDL development because they are used in the same way as promulgated criteria. Due to these concerns, IDEM's legal counsel has reviewed the legality of IDEM's use of derived criteria in these processes within the context of IC 4-22-2. Based on that review, IDEM has decided against using derived criteria for the purposes of making 305(b) assessments and 303(d) listing decisions, or for TMDL development until adequate due process is provided on the derivation and use of derived criteria.

Comment: The Water Pollution Control Board must promulgate the Tier I and Tier II criteria before IDEM can use them for permitting, 303(d) listing or the TMDL program because the narrative criteria allegedly translated with the Tier I and Tier II value are unascertainable standards and void for

vagueness. (ALCOA; ICC; IUG) The narrative criteria are illegal. (ALCOA)

IDEM Response: Indiana's narrative water quality criteria are codified in the state's WQS at 327 IAC 2 and were approved by U.S. EPA. The water quality criteria derived in accordance with Indiana's WQS remain an essential part of developing permit limits for facilities discharging substances for which aquatic life criteria are not specifically articulated as surface water quality criteria in Tables 6-1 through 6-3 in Indiana's WQS.

Comment: U.S. EPA must approve IDEM's 303(d) list prior to IDEM implementing TMDLs for impaired waters necessary to comply with WQS. IDEM relied on a draft TMDL for the Busseron Creek, which has not received either state or EPA approval to classify 52 waters a Category 4A waters. This is in violation of the CWA and must be corrected to comply with the CWA process (IUG).

IDEM Response: IDEM's listing of newly identified impairments directly in Category 4A without their first appearing on an approved 303(d) list is not a violation of the CWA. The public comment period built into the TMDL process provides opportunity to comment as does the comment period for the next scheduled draft 303(d) list. All Category 4A waters associated with TMDLs not yet approved are classified in the draft 303(d) list as "proposed" for Category 4A pending approval of the TMDL prior to submission of the list. The Notice of Comment period states that if EPA approval of a given TMDL is not obtained prior to submission of the finalized 303(d) list, all associated impairments will be placed in Category 5.

Comment: Indiana Water pollution Control Board's failure to develop 303(d) listing methodology regulations violates state law. Meaningful public participation and appropriate scientific rigor to support agency action have been thwarted by the Water Board's ongoing failure to formally promulgate regulations to guide IDEM's identification of impaired waters and development of 303(d) lists. See IC 13-18-2-2(b), which provides that the Water Board "shall adopt a rule that establishes the methodology to be used in identifying waters as impaired and specifies the methodology and criteria for including and removing waters from the list of impaired waters." (ICC; IUG)

IDEM Response: IDEM continues to refine its Consolidated Assessment and Listing Methodology, which is submitted to EPA biannually with the 303(d) lists for approval.

Comment: IDEM has identified 44 segments as impaired for sulfates but has not included a specific water quality criterion for sulfates in the 303(d) list document. (ICC)

IDEM Response: Because the sulfate criteria are clearly expressed in the WQS, IDEM sees no reason to duplicate this information in the CALM. However, IDEM's CALM and 303(d) listing document incorporates Indiana's WQS by reference and provides references to specific sections of 327 IAC Article 2 where needed for clarity.

Comment: IDEM has identified three reaches as impaired for manganese but has not provided a specific water quality criterion for in the 303(d) list document. (ICC)

IDEM Response: IDEM has developed a derived criterion for manganese, which was inadvertently omitted from Table 11 of the CALM published with the draft 303(d) list. This table has since been removed from the CALM based on IDEM's decision not to use derived criteria in its 305(b) assessment and 303(d) listing decisions and TMDL development.

Comment: IDEM has identified five reaches as impaired for oil and grease but has not provided a specific water quality criterion in the 303(d) list document. (ICC; IUG)

IDEM Response: The oil and grease impairments on Indiana's 303(d) list are what IDEM commonly refers to as "relic" listings. Relic listings are impairments based on assessments that were made prior to IDEM's development of a formalized CALM and for which the original basis for the assessment may or may not be known. In some cases, the basis for the impairment is known but must remain on the 303(d) list until IDEM can demonstrate "good cause" for removing them.

The waters impaired for oil and grease are the Grand Calumet River and the Indiana Harbor Canal, which were originally listed based on 10 years' worth of data collected from fixed stations between 1959 and 1973. The locations for the specific sites and the criteria used to make the original assessment are identified in IDEM's 1977 305(b) Report, which is available upon request from IDEM's Integrated Report Coordinator, Jody Arthur, at 317-308-3179 or jarthur@idem.IN.gov.

In response to comments regarding these impairments in previous 303(d) listing cycles, IDEM has considered whether or not it could demonstrate "good cause" in delisting these waters based on the fact that IDEM no longer has a criterion in place. IDEM found that the most recent evidence suggests that oil and grease, while not regularly monitored by IDEM, continues to be a problem in these waters. Based on this and the robust data set used to make the original assessment, which was determined to be representative at the time the original assessment was made, IDEM has decided that it cannot at this time demonstrate any "good cause" for delisting and that these impairments must remain listed until more recent data are available indicating that they no longer exist.

IDEM's CALM was first developed in 2002, long after these assessments were made. Because IDEM did not have a water quality criterion for use in assessments at this time, the assessment methods used to identify the oil and grease impairments already listed were never incorporated into the methodology. Because IDEM does not have an applicable numeric water quality criterion or assessment methodology for oil and grease, IDEM has not incorporated the information regarding the basis for these assessments into its CALM but will consider doing so for the 2012 cycle.

Comment: IDEM is incorrect in using EPA's criterion for methyl mercury as the state water quality criterion for mercury in fish tissue. IDEM bases this decision on the proposition that nearly 100% of the mercury in fish tissue is methylmercury. However, this is only true for top predator fish, since the percentage of methylmercury in fish tissue depends on the trophic status of the fish (with higher status fish typically having higher percentages of methylmercury. Focusing only on top predator fish would likely significantly limit IDEM's data pool. For example, fish sampling data performed by the U.S. Geological Survey in September 2007 in the Busseron Creek Watershed identified only 5.1% of the captured fish as high trophic fish (e.g. largemouth bass and grass pickerel). These species were found to be limited in their spatial distribution, and each contributes a minor component to the fish assemblage

within the watershed. Moreover, the EPA methylmercury criterion is an integrated average value and thus assumes that people eat different amount of fish at different trophic levels. Accordingly, IDEM's application of the federal methylmercury criterion as a total mercury water quality criterion is erroneous. (ICC; IUG)

IDEM Response (references cited appear at the end of this document): Mercury becomes easily available for bioaccumulation/biomagnifications once it is in the organic form methylmercury. There is substantial evidence for biological and abiological production of methylmercury. Methylation of mercury requires the presence of a free inorganic mercuric ion, $Hg(^{2+})$, and a methyl donor molecule(s). Many biological end-products commonly found in the aquatic system are potential methylating agents. It has been found that conversion of inorganic mercury to methylmercury occurs primarily in microorganisms especially in aquatic systems (National Research Council, 2000). Methylation of inorganic mercury may also occur *in vitro* in fish livers and intestine.

It is well known that nearly all of the mercury present in the edible portion of all species of fish is methylmercury, not just top predators, regardless of their diet sources and exposure in water (National Research Council, 2000; Rodgers, 1994; Moore and Ramamoorthy, 1984; Jacobs, 1974). This is likely because methylmercury is easily accumulated in fish tissues. While methylmercury is not very lipid soluble as compared to many organochlorine contaminants, it binds strongly with sulfhydryl groups in proteins and is therefore readily accumulated and retained in biological tissues (Clarkson, 1994). Because the half-life of elimination of methylmercury is among the longest known for metals, once accumulated in the fish tissues, it remains (Jarvenpaa et al. 1970).

The percentage of methylmercury in the fish tissue compared to total mercury in the fish tissue is not a function of trophic level. Methylmercury may bioaccumulate in fish tissue through direct ingestion of water and through uptake by the gills. Studies have indicated that sediment and algae are the main source of methylmercury to herbivorous invertebrates and fish.
Once incorporated into the food chain, methylmercury is subject to biomagnification up the food chain to the highest level of predators, which explains the higher levels of methylmercury in higher trophic level fish. In these species, as much as 90+% of measured mercury in fish tissue is in the form of methylmercury. Therefore, IDEM's assumption for health risk is that all of the mercury detected in fish tissue is methylmercury is valid.

While it is true that top predators make up only a small proportion of the community, they are not the only indicator of risk to humans and wildlife that consume fish. Using an integrative approach to establishing the criteria is the most conservative for the protection of human health.

Comment: HEC states that it is not acceptable to remove waters from the list of impaired waters simply because a TMDL document has been completed and recommends that all the waters listed in Attachment 4 (Impairments Moved to Category 4A on the Basis of TMDL Completion) of the draft 303(d) list be placed back on the Category 5 list. The TMDL must be implemented and the waterway re-assessed before we can determine that it should be removed from the list of impaired waters.

IDEM Response: IDEM's 303(d) listing processes follow the applicable federal regulations. 40 C.F.R. 130.7(b)(1), requires that "each state shall identify [on its 303(d) list] those water quality-limited segments still requiring a TMDL". Thus, by definition, waters for which a TMDL has been completed do not belong on the 303(d) list (Category 5). In delisting an impairment (removing it from Category 5), IDEM must follow 40 C.F.R. 130.7(b)(6)(iv)), which requires states to demonstrate good cause for

removing waterbody impairments from their 303(d) list that were included on previous 303(d) lists. U. S. EPA's "delisting rules" are summarized here:

- New data indicates that WQS are now being met.
- The state's assessment and/or listing methodology has changed, and the waterbody is no longer considered impaired.
- The state's WQS have changed and the waterbody is no longer considered impaired.
- The original listing was found to be in error.
- The state can demonstrate that there are other pollution control requirements in place that are better suited than a TMDL to address the problem.
- The impairment is not caused by a pollutant for which a load can be calculated.
- A TMDL for the impairment has been approved by USEPA.

Clearly, the federal regulations allow delisting based on TMDL completion. What is equally clear to IDEM is that the public may still not fully understand what a Category 4A listing means. Moving an impairment to Category 4A does not mean that the waterbody is no longer impaired. It means simply that IDEM's regulatory obligation to complete the TMDL has been met. However, IDEM does not view Category 4A as a regulatory "parking lot" for impaired waters. On the contrary, IDEM's TMDL Program works closely with the Nonpoint Source Program and IDEM's Watershed Specialists to develop TMDL reports that can be effectively used by local watershed groups and stakeholders to facilitate the restoration of impaired waters. The TMDL program also coordinates with local governmental agencies and stakeholders within the TMDL area. This coordination provides numerous opportunities for local participation in the TMDL process, which can lead to positive changes in the watershed.

Comment: Waterways should not be removed from the 303(d) list unless restored, not simply because we do not have numeric criteria. HEC states that water bodies should not be de-listed unless there is information indicating that total dissolved solids (TDS) are not interfering with designated uses and has recommended that IDEM place all the impairments based on the previous water quality criteria, which appear in Attachment 7 of the draft 303(d) list (Waterbody Impairments Proposed to be Removed from Category 5A of Indiana's 303(d) List Based on Information Received Since the 2008 List was Developed) back in Category 5 of the 2010 303(d) list. (HEC)

IDEM Response: Before proposing to delist any impairment, IDEM reviews the available data to ensure that the delisting is appropriate. Typically, data are reviewed against the numeric or narrative criteria upon which the original listings were based. The total dissolved solids impairments to which HEC refers were originally listed based on a numeric criterion of 750 mg/L, which was stricken from Indiana's WQS in 2005.

In making these decisions, IDEM must follow 40 C.F.R. 130.7(b)(6)(iv)), which require states to demonstrate good cause for removing waterbody impairments from their 303(d) list that were included on previous 303(d) lists. The "delisting rules" applicable to this discussion are summarized here:

- The state's assessment and/or listing methodology has changed, and the waterbody is no longer considered impaired.
- The state's WQS have changed and the waterbody is no longer considered impaired.

Indiana's WQS, both the narrative and numeric criteria they contain, provide the foundation for IDEM's CWA assessment and listing processes. A waterbody is considered impaired when it is found to be non-supporting of one/more designated uses, which is determined by comparing the available data to the applicable criteria. The fundamental problem with TDS from an assessment perspective is that the criterion that was used to make the assessment is no longer valid. And, without a specific water quality criterion for TDS, these waters are no longer considered impaired.

Comment: Indiana's proposed 2010 List of Impaired Waters is a long list, yet it does not reflect the full extent of water quality problems in the state. Some of the biggest pollution problems remain [un]documented because water quality standards are inadequate. For example sediment is the biggest pollution problem, but goes undocumented as there are no numeric limits for sediment. Sediment from soil erosion can impair biotic communities by destroying habitat and interfering with the ability of aquatic species to breathe, feed, and reproduce. Sediment also carries pathogens and nutrients that cause eutrophication. There are no numeric standards for algae, nutrients, or phosphorus. While some waterbodies are listed for these parameters, they tend to be overlooked and under-reported in the 303(d) listing decisions and in TMDL's due to lack of numeric criteria governing them. Livestock manure is an important source of nutrients in Indiana waterways also. (HEC)

IDEM Response: Indiana's WQS provide the basis for all IDEM's assessments and 303(d) listing decisions. Indiana's WQS contain two types of water quality criteria, narrative criteria and numeric criteria. Narrative criteria are statements about the conditions that Indiana's surface waters must meet to support their designated uses and numeric criteria for specific substances that might be found in surface waters. In order to determine whether a specific pollutant is impairing a designated use, IDEM must have applicable water quality criteria.

Indiana's water quality standards do not contain numeric criteria for all substances that could possibly be found in surface waters. However, the fact that a numeric criterion for a given substance does not exist or has not been codified in Indiana's WQS does not necessarily preclude IDEM's ability to determine whether that substance is impairing a designated use. For assessments based on narrative criteria, an assessment methodology must be developed that that describes what information is to be considered, the scientific basis, and how that information is to be evaluated for the purposes of determining use support. IDEM has done this for some types of impairments, however; since methodology development is complex and resource intensive, such efforts must necessarily be balanced against other OWQ priorities.

Comments Regarding Specific Waterbodies

Streams in the Busseron Creek Watershed

Comment: According to the Busseron Creek Assessment Notes compiled and provided by IDEM, the following assessment units were not impairment for sulfates. Accordingly, these impairments must be removed from the 303(d) list:

ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME
INB11G7_01	BUSSERON CREEK
INB11G8_T1036	BUSSERON CREEK
INB11GA_01	BUSSERON CREEK
INB11GD_01	BUSSERON CREEK
INB11GD_02	BUSSERON CREEK
INB1136_T1033	SULPHUR CREEK – UNNAMED TRIBUTARY 2 BASIN
INBIIG4_T1003	SULPHUR CREEK (HEADWATERS)
INBIIG4_T1004	SULPHUR CREEK
INBIIG4_T1005	SULPHUR CREEK
INB11G5_T1034	BIG BRANCH TRIBUTARY – GILMOUR
INB11G6_02	BIG BRANCH
INB11G6_03	MUD CREEK
INB11G6_04	MUD CREEK
INB11G9_00	BUTTERMILK CREEK
INB11G9_01	BUTTERMILK CREEK
INB11G9_02	BUTTERMILK CREEK
INB11G9_03	BUTTERMILK CREEK
INB11GA_03	ROBBINS BRANCH

IDEM Response: All of these waters have been delisted for sulfates based on Indiana's statewide reassessment for sulfate, which was completed after the draft 303(d) list was published.

Comment: According to the Busseron Creek Assessment Notes compiled and provided by IDEM, assessment units INB11GA_03 (Robbins Branch) has an IBI score of 36 but is listed as impaired for impaired biotic communities (IBI). According to IDEM's listing methodology, segments with IBI scores of 36 or greater are deemed to be fully supporting the designated use. Thus, INB11GA_03 should not be listed for IBC in the 303(d) document.

IDEM Response: IDEM has removed this impairment from its finalized 303(d) list.

Comment: The draft 303(d) list document inconsistently classifies the following water segments. These segments are listed in the draft 303(d) list document, Attachment 2 as "retired as a result of resegmentation," as well as in Attachment 11 as impaired waters. Since these waters have been resegmented, they must be removed from Attachment 11. Additionally, segment INB11GD_00 is listed both in Attachment 7, indicating that it has been delisted due to new information, and in Attachment 11 for sulfate. If this segment has been delisted, then it must be removed from Attachment 11 for sulfate.

ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME
INB11GA_00	BUSSERON CREEK – ROBBINS CREEK
INB11GD_00	BUSSERON CREEK – TANYARD BRANCH
INB11G9_00	BUTTERMILK CREEK

IDEM Response: All of these assessment units were retired due to resegmentation and no longer appear on IDEM's finalized 303(d) list.

Comment: According to the updated Busseron Creek Assessment Notes compiled and provided by IDEM, the following assessment units have been determined to no longer be impaired for certain parameters and must be removed from the Category 5 list:

ASSESSMENT UNIT ID	ASSESSMENT UNIT NAME	2010 DRAFT IMPAIRMENT	IMPAIRMENTS ON INDIANA'S FINALIZED 2010 303(D) LIST
INB11G4_T1003	SULPHUR CREEK (HEADWATERS)	COPPER, NICKEL, DISSOLVED OXYGEN, SULFATES	IBC; NUTRIENTS; PH
INB11G4_T1004	SULPHUR CREEK	COPPER, NICKEL, DISSOLVED OXYGEN, SULFATES	IBC; NUTRIENTS; PH
INB11G4_T1005	SULPHUR CREEK	COPPER, NICKEL, ZINC, DISSOLVED OXYGEN, IMPAIRED BIOTIC COMMUNITIES, PH, SULFATES	
INB11G5_T1034	BIG BRANCH TRIBUTARY - GILMOUR	SULFATES	
INB11G6_02	BIG BRANCH	PH, ZINC, SULFATES	IBC
INB11G6_03	MUD CREEK	PH, ZINC, SULFATES	IBC; NUTRIENTS
INB11G6_04	MUD CREEK	SULFATES	
INB11G7_01	BUSSERON CREEK	SULFATES	
INB11G8_T1036	BUSSERON CREEK	SULFATES	
INB11GA_01	BUSSERON CREEK	SULFATES	
INB11GD_01	BUSSERON CREEK	SULFATES	
INB11GD_02	BUSSERON CREEK	SULFATES	
INB11G9_01	BUTTERMILK CREEK	SULFATES	
INB11G9_02	BUTTERMILK CREEK	SULFATES	
INB11G9_03	BUTTERMILK CREEK	SULFATES	
INB11GA_03	ROBBINS BRANCH	SULFATES	

IDEM Response: IDEM finalized both its statewide reassessment for sulfate and it assessments for the Busseron Creek watershed after the draft 303(d) list was published. As a result, all of the sulfate impairments identified above have been removed from the finalized 303(d) list. Based on changes in Indiana's WQS from total metals to dissolved metals criteria, all metals impairments have also been removed from the finalized list. The impairments remaining for these assessment units on the finalized 303(d) are shown in the final column added by IDEM to the table above.

White River and Wabash River

Comment: A scum on White River this past summer was attributed to algae growth and was determined to be dominated by a diatom called *Cyclotella meneghiniana*, which is not a known toxin, however, the algae bloom interfered with recreational use. IDEM should list the White River and the Wabash River

for both algae and phosphorus. The White River is an important recreational and natural area through Indianapolis. It should be clean enough to support boating and swimming and provide a healthy environment for fish, plants, and wildlife. Concentrated efforts should be made to preventing point discharges to the White River within the Indianapolis area and find ways to clean up the banks to make a beautiful natural asset. (HEC)

IDEM Response: IDEM considers all waters important and agrees with HEC that the White River should meet its designated uses, as should all waters of the state. With regard to point source discharges, IDEM's NPDES permitting program works to ensure that discharges from permitted facilities do not cause or contribute to impairment of Indiana's surface waters. And IDEM's Nonpoint Source program provides grant funds to local watershed groups and other organizations to help reduce nonpoint sources of pollution to Indiana waters.

Currently, there are several reaches of the Wabash River identified on IDEM's 303(d) list as impaired for nutrients and a TMDL has been completed for a number of nutrient impairments to the upper reaches of the Wabash River. There are also two reaches of the White River downstream of Indianapolis in Owen and Greene counties impaired for nutrients. In accordance with its rotating basin monitoring and assessment strategy, IDEM monitors 1-2 basins (about one-fifth of the state) each year. When subsequent water quality assessments are made for a given basin(s), IDEM considers all of the data collected for assessment purposes. Therefore, if a waterbody does not appear on the 303(d) list, it is either because IDEM does not have sufficient data with which to make an assessment or that the waterbody has been found to be fully supporting of one or more designated uses.

Ball Lake, Lake Lemon, Glen Flint Lake, Geist, Morse and Eagle Creek Reservoirs, Lake Wawasee, and Old Lake in Whitley County

Comment: Algae is an ongoing concern, especially since the discovery of blue-green algae, also known as cyanobacteria, that produce tasteless, odorless toxins. It also produces an invasive toxic species known as *Cylindrospermopsis raciborksii*. These toxins can cause skin irritations, gastrointestinal illness, neurological problems, liver failure and death. While no human deaths have been reported, numerous livestock and dog deaths have been documented. The following waters which have levels over 100,000 algae per ml should be included on the impaired waters list for both algae and nutrients, unless there is convincing evidence to indicate that some other factor is causing algae growth: Ball Lake, Lake Lemon, Glen Flint Lake, Geist reservoir, Morse reservoir, Eagle Creek Reservoirs, Lake Wawasee, ad Old Lake in Whitley County. (HEC)

IDEM Response: Geist, Morse, and Eagle Creek Reservoirs are already listed for algae based on an assessment methodology that is no longer used. However, IDEM does have two methods for assessing recreational use in lakes and reservoirs, one method for determining use support within the context of aesthetics and the other for human health. These two types of assessments require different types of data. Recreational use support assessments for human health require *E. coli* data and any resulting impairments would be listed for *E. coli*. In 2008, IDEM developed a new assessment methodology for recreational use assessments of lakes within the context of aesthetics. These assessments require total phosphorus data and corresponding chlorophyll a data, along with a trophic state index score. Any impairments identified based on these assessments are listed for phosphorus. IDEM is still in the process of reassessing all the lakes and reservoirs with the new methodology and will solicit and review all

readily available data for the other lakes of concern to the commenter to determine if listing is appropriate for the 2012 cycle.

Salamonie Lake

Comment: Salamonie Lake provides recreational opportunities such as swimming, fishing boating, and camping. Per the Army Corps of Engineers the FY 2007 visitation figures to Salamonie Lake were 443,796 with estimated visitor expenditures of $11,466,562.00. Salamonie Lake is in danger of being polluted from excess E.coli, nitrogen, algae, phosphorus from farm runoff and the CAFO operations in the surrounding areas. Of particular concern is that the Teays Aquifer runs all through the Salamonie Lake area within a mile or so. It is the source of drinking water for thousands of people. If Salamonie Lake gets badly polluted, it will pollute hundreds of wells in the area. Phytoplankton samples collected between 1999 and 2007 from Salamonie Lake, in combination with nutrient and other data, indicate that Salamonie Lake is very productive. (LP)

IDEM Response: The response to the previous comment applies. Additionally, IDEM is aware of the socio-economic and environmental benefits of the state's lakes and reservoirs and appreciates the commenter's concerns regarding the health of this valuable resource. IDEM will solicit and review all readily available data for Salamonie Lake for the 2012 cycle to determine if impairment exists and if restoration efforts are needed.

Shipshewana Lake, Page Ditch, the Pigeon River, and St. Joseph River Tributary

Comment: SCLIA wishes to inform IDEM of the water quality standards degradation and continuing eutrophication of Shipshewana Lake in LaGrange County. SCLIA requests assistance from IDEM in addressing the issues and data regarding the poor quality of the inlet waters so that pollutants can be reduced. SCLIA is monitoring the contamination and nutrients that are negatively impacting the lake which are coming from the Lake Shipshewana watershed. SCLIA is unable to monitor the whole watershed and request assistance. SCLIA is concerned that Shipshewana Lake is not included on the 2010 listing in spite of the degradation and eutrophication it has sustained and are requesting IDEM list the lake. SCLIA is also concerned that the discharge of Shipshewana Lake is likely impairing Page Ditch, the Pigeon River, and St Joseph River tributary to the Lake Michigan-Great Lakes Basin, due to the nutrients in the lake outlet. The Lake is used year-round for fishing, boating and recreation. SCLIA fears that the annual usage has been reduced due to deteriorating water quality issues: clarity, excessive weed growth, inability to navigate for fishing and recreation in many areas of the lake, aesthetically unappealing, strong, unpleasant odor in summer most of the time. SCLIA states that currently the water quality and aesthetics are very similar to the time of its 1986 listing by IDEM of the lake being Class 3; advanced eutrophic body of water as described by SCLIA in the 1989 draft feasibility study; and the lake was classified by the Army corps of Engineers as being in the Class IV management group, and conclusive for potential of restoration through dredging. Shipshewana Lake is being negatively impacted by several sources of nutrients and solids, including: Total Dissolved Solids, Total suspended Solids, Nephelometric Turbidity Units, Nitrates, Total Phosphorus, and *E.coli*. The negative impact of additional nutrient and bacterial loadings from the watershed has increased since 1986. These impacts are related to the large influx of tourism, the large population increase of Amish culture, increases of cluster housing around the lake, not using BMP's in the watershed, and failing or inadequate pollution

control devices. Since the Town of Shipshewana is currently scheduled for a sewer project in 2010, SCLIA is concerned that may not be enough to restore the water quality of the lake. Therefore, they are requesting a thorough review of these issues and the current situation, plus a follow-through on the recommendations, and oversight management for any additional projects in the future. (SCLIA)

IDEM Response: IDEM has been in correspondence via email and in person with several members of the SCLIA and is aware of the concerns they have expressed in their comments regarding the draft 303(d) list. Among other things, we have discussed the possibility of getting Lake Shipshewana placed on the 303(d) list. One of the issues associated with this is the fact that, in accordance with IDEM's CALM, we need certain types and amounts of data in order to determine if a 303(d) listing is warranted. IDEM reviewed the data that the Agency has for Lake Shipshewana and has found that it does not meet data sufficiency requirements. However, SCLIA has provided IDEM with water quality data that, upon the Agency's initial review, appear may meet the data quality and quantity requirements for use in 305(b) assessments, which is the first step in determining whether an impairment exists. As noted in the narrative submitted with IDEM's 303(d) list, it is anticipated that the review of all external data received and found to be meeting IDEM's data quality criteria will be completed by the 2012 cycle when IDEM's External Data Framework is finalized.

IDEM would also like to commend the members of the SCLIA in their efforts to restore Lake Shipshewana and anticipates that the upcoming sewer project will do much to improve the water quality in the lake. IDEM's watershed specialist for this area has also been working with SCLIA and Indiana Department of Natural Resources Lake and River Enhancement Program to explore the possibility of additional funding through that program for the purposes of restoration. Other avenues for assistance that the SCLIA might wish to explore might also include the application to IDEM's Nonpoint Source Grant Program for grant assistance in watershed planning and/or restoration.

Little Calumet River, Salt Creek, and Swanson-Lamport drain (a tributary to Salt Creek)

Comment: [The 303(d) list contains listings for] *E. coli*, but no listing for fecal coliform. Every time it rains [local wastewater treatment] facilities bypass into a local receiving stream. When this occurs, the stream rises from its banks and floods surrounding lowlands. When the water recedes, neighboring homeowners complain of feces remaining on the lowlands. This water flows into Lake Michigan. [Based on this information] the Little Calumet River and others should indicate fecal coliform pollution present. Salt Creek is another stream with many small package treatment plants with problems with by passes. Swanson-Lamport regulated drain, a tributary of South Creek, accepts the wastewater from Burns Harbor Estates. In previous years the facility bypassed for an extensive period of time until the Region V EPA intervened. Many tests were done, a hearing was conducted involving the county board, and finally the matter moved to judicial review, without any desired result. (JFS)

IDEM Response: The bypassing of waste into receiving waters is addressed by IDEM's Office of Water Quality compliance programs and when necessary, IDEM's enforcement program in accordance with the agency's policies and procedures governing wastewater treatment and discharges.

With regard to impairments, it should be noted that, in keeping with Indiana's water quality standards (WQS), IDEM uses *E. coli* as an indicator for other harmful pathogens in the water. *E. coli* is a subset of fecal Coliform and has been determined by U.S.EPA to be a better indicator for potential human illness. With regard to the specific streams identified in the comment, both the Little Calumet River and the Salt Creek are identified on the 303(d) list as impaired for *E. coli*. The *E. coli* impairment

to some of the reaches of these streams has been addressed in total maximum daily load(TMDL) reports, which can be found online at: http://www.in.gov/idem/4685.htm. It should be noted that the impairments to these reaches do not appear in Category 5A (the 303(d) list), but rather are in Category 4A based on the completion of their TMDLs. These impairments may still exist. However, once the TMDL is approved for them, per U.S. EPA policy, they are to be placed in Category 4A of Indiana's Consolidated List.

Hurricane Creek, Canary Creek, and Little Sugar Creek in Johnson County

Comment: The commenter opposed three CWA Section 401 projects based on his interpretation of state and federal environmental law and regulation and requested a public hearing on each project. According to the commenter, these requests were arbitrarily and unreasonably denied by IDEM which he states is a violation of 327 IAC 2-1-2(2). According to the comment, work was begun by the County Surveyor on Hurricane Creek without authorization. His comments further state that the Surveyor claimed to be ignorant of the law and that IDEM has not found him to be committing any violation. After visiting the Little Sugar Creek site, the commenter documented and photographed work had he suggests proceeded months earlier and which has caused widespread environmental damage. He submitted this information to IDEM, claimed that the work was conducted without authorization and expected that according to his interpretation of IDEM's regulations, a Notice of Violation should have been promptly issued. (GM)

IDEM Response: IDEM has been onsite with representatives from the Johnson County Surveyors Office on two separate occasions. No violations were observed during the site meetings. Therefore, a Notice of Violation letter was not issued.

General Comments

Comment: SDC is concerned about several aspects of the listing. A significant portion of Indiana's surface waters are impaired for *E.coli*. This poses an increased health risk to the public, especially for full body contact. Most of the causes are nonpoint sources, along with continued problems from Combined Sewer Overflows. SDC wants IDEM to look at causes and focus on solutions. (SDC)

IDEM Response: The 305(b) assessment and 303(d) listing processes are just two of the many CWA "tools" that IDEM uses to protect and restore Indiana waters. With regard to addressing the sources of *E. coli* in our surface waters, IDEMhas approved the Combined Sewer Overflow Long Term Control Plans (CSO LTCPs) for 85 of the 107 communities with combined sewers, and 25 communities have completed the implementation of CSO controls. Of the 22 communities left to have their LTCPs approved, 16 are in an enforceable mechanism to get them developed and implemented and 6 are in negotiations with EPA and IDEM. The MS4 program works to reduce the impacts of urban storm water and the Nonpoint source program administers CWA Section 319 providing millions of dollars and technical assistance each year to watershed groups and other nonprofit organizations working to protect and restore their watersheds. Many of these funds go toward implementation of practices aimed at reducing the delivery of *E. coli* and other pathogens to surface waters. Each year, IDEM's TMDL program develops several TMDL reports, which provide information to assist local groups in watershed planning and implementing their plans to restore water quality. IDEM's approach to solving Indiana's water quality issues is comprehensive in nature and acknowledges that no single agency can protect and restore important natural resources. IDEM's role is to regulate where required and facilitate whenever

possible the activities necessary to restore water quality on the local level.

Comment: SDC urges IDEM to fully address Phosphorus. They point out that there is a relationship between nutrients/sediments/DO/Impaired Biotic Communities and algae and it may be that a combination of these impairments need to be addressed in conjunction with each other. (SDC)

IDEM Response: U.S.EPA has required all states develop and adopt numeric nutrient criteria into their WQS. IDEM is currently developing phosphorous criteria for lakes, and will follow with nutrient criteria for streams. When these criteria are adopted into Indiana's WQS, they can be used to develop permit limits for NPDES permitted facilities, develop TMDLs and help IDEM to determine the extent to which nutrients are impacting Indiana waters through its CWA 305(b) assessments.

Comment: SDC realizes that the 303(d) list is limited as far as how it can improve water quality. They urge IDEM to take an aggressive approach to water quality improvements. They indicate that trend data is missing, which would be valuable in encouraging citizen participation. (SDC)

IDEM Response: IDEM has a great deal of long term data available upon request from its Fixed Station Monitoring Program for streams and the Clean Lakes Program, both of which have been collecting data for several years at the same sites.

Comment: Humans often indirectly affect how much light and nutrients are available to algae. The disturbance of soil through agricultural activity, for example, can cause sediment to enter the lake. This will increase turbidity of the water, resulting in less light penetration and cloudy water, which in turn results in limited phytoplankton production and less food for the foundation of the food chain. Conversely, the introduction of nutrients to the lake due to crop management or discharge of human or animal waste will elevate the level of nutrients in the water resulting in accelerated production of phytoplankton or algal bloom. Algal blooms will use up dissolved oxygen leaving less for fish which can be lethal. LP cited instances when toxic algal growth was seen on Indiana waterways, including cyanobacteria due to phosphorus and nitrates from run-off, and nitrogen from human and animal waste. Microcystin was also found in Geist Reservoir which is a toxin known to cause liver toxicity, neurotoxity, tumor growth, rashes, allergic reactions and gastrointestinal upsets. At high levels it can lead to serious illness or death. In Indiana, more than 25 lakes, reservoirs and streams have been found to contain microcystin. These reservoirs are under scrutiny as they provide drinking water and summer recreational opportunities. (LP)

IDEM Response: The issues related to excessive nutrients in surface waters are well documented. U.S.EPA has required all states develop and adopt numeric nutrient criteria into their WQS. IDEM is currently developing nutrient criteria for lakes, which when adopted into Indiana's WQS, can be used to develop permit limits for NPDES permitted facilities, develop TMDLs and help IDEM to determine the extent to which nutrients are impacting Indiana waters through its CWA 305(b) assessments. IDEM's monitoring strategy for streams includes a very robust nutrient monitoring component which has provided much of the data necessary to develop criteria. Also, IDEM's Clean Lakes Program monitors Indiana's lakes and reservoirs for trophic conditions, which includes many nutrient related parameters. IDEM's monitoring programs are currently being expanded to include additional monitoring for toxin producing cyanobacteria along with a process for ensuring that the public is adequately notified of any

identified health risks associated with Microcystin.

Comment: One of the most widespread pollution problems identified on the 2010 Impaired Waters list is *E. coli*, making water unsafe for recreational use. In spite of this, IDEM continues to approve new CAFOs and new septic systems in areas where the waters are known to be impaired for *E. coli*. Watershed coordinators have no knowledge of exactly where manure is being spread, when or how much. This approach ignores the pathogen content of manure, particularly if manure is spread on fields that have artificial drainage tiles that act as a conduit for carrying pollutants straight to our streams. *E. coli* comes from non-point as well as non-point sources. HEC has done calculations to show that livestock is likely to be a very large contributor to overall *E. coli* loads. HEC reports that IDEM often states that *E. coli* comes from non-point sources that are unregulated, but this is inaccurate. While septic systems and livestock operations may not be subject to NPDES discharge permits, they are, in fact, regulated activities. Livestock manure is regulated by IDEM, as well as the Office of the Indiana State Chemist, and septic systems are regulated by Department of Health. They recommend that IDEM, DOH and State Chemist offices work together to address water quality issues. (HEC)

IDEM Response: IDEM acknowledges that septic systems and livestock operations are regulated activities. However, IDEM has no authority to regulate private septic systems. Residential septic systems are regulated on the county level by the county health departments and commercial septic systems are regulated by the Indiana State Department of Health (ISDH). IDEM does, however, support holistic watershed planning on the local level, through which septic issues may be better addressed, through its CWA Section 319 grants.

With regard to waste from CFO/CAFOs, depending on the size of the livestock operation, land application of livestock manure is regulated as a solid waste through IDEM's Office of Land Quality's CFO program. It should be noted that although IDEM OWQ does not administer CFO/CFO regulations, the regulations that govern these operations are based on water pollution control laws. All the required criteria are intended to address the factors that pose a water quality risk from these operations and to provide the public knowledge of proposed and permitting activities. Pollution prevention measures have served to improve manure and nutrient management by those regulated under IDEM's program. If all the necessary requirements to obtain a NPDES permit are met, IDEM has no legal means or reason to deny that permit. IDEM is coordinating with the ISDH and the State Chemist Office on water quality issues.

Comment: HEC points out that in 2008, Forbes magazine ranked Indiana 49th in U.S. in environmental quality, based on a variety of factors including water quality. HEC states that under the Clean Water Act, identifying pollution problems on the Impaired Waters List is supposed to be a key step toward improving and restoring water quality. Also, that impaired waters are subject to anti-degradation to prevent pollutants which make existing problems worse; and Total maximum Daily Load and watershed management plans to phase out pollution sources until the water is cleaned up. Indiana has never fully implemented these provisions, but the list remains a key baseline and starting point for assessing Indiana's water quality. (HEC)

IDEM Response: IDEM agrees that the 303(d) list is a key measure of Indiana's water quality and has implemented all of the provisions identified by the commenter. Pursuant to CWA Sections 305(b), IDEM monitors and assesses its waters on an ongoing basis. In accordance with CWA Section 303(d), IDEM develops a 303(d) list for impaired waters every two years and develops TMDLs. IDEM also

funds watershed management planning and restoration implementation efforts throughout the state through its CWA 319 program. With regard to the development of an antidegradation policy, IDEM has had antidegradation implementation procedures in place for the Great Lakes Basin since the 1990s and is currently working to expand those procedures to the entire state. Although this effort has proven to be complex and controversial, IDEM continues to make progress in the development of its Antidegradation Policy.

Comment: IWF is concerned about eutrophication in Indiana waters and subsequent ecological problems, due to excess nutrients in lawn fertilizers. They emphasize that phosphorus should be considered a major contributor and threat to local habitats and water quality, as evident in the White River and Sugar Creek in the past year. They suggest emphasizing the use of phosphorus-free fertilizer which would be the most important solution. They also feel that the use of phosphorus in lawn fertilizers should be made illegal across Indiana except in cases where a soil test indicates phosphorous deficiency. IWF has begun statewide education and advocacy campaigns to that end hoping to translate into legislative action to ban phosphorus. They state that research from IUPUI indicates that cyanobacteria produce a toxin called microcystin, exceed the threshold level, and contribute to unsustainable living conditions for habitat in Geist and Morse Reservoirs. IUPUI also sampled 15 lakes in Indiana and found 53% to contain cyanobacteria and the majority tested positive for microcystin. Indiana needs stricter nutrient criteria and a well-designed and acknowledged water quality monitoring system enforced by proper staffing and training. IWF is concerned that Indiana has fallen behind several states in active laws restricting phosphorus. (IWF)

IDEM Response: Excessive nutrients are a problem in surface waters throughout the United States, which is why U.S.EPA is requiring all states develop and adopt numeric nutrient criteria into their WQS. Like most other states, IDEM is still in the process of developing its nutrient criteria. Once these criteria are developed and adopted into Indiana's WQS, IDEM can then use them in CWA Section 305(b) assessments to determine the extent to which nutrients are impacting Indiana waters. IDEM's monitoring strategy already includes a very robust nutrient monitoring strategy which has provided much of the data necessary to develop criteria and which is now being expanded to include additional monitoring for toxin producing cyanobacteria along with a process for ensuring that the public is adequately notified of any identified health risks associated with Microcystin.

It should be noted that no single agency has regulatory authority over all sources of phosphorus to Indiana's surface waters. Given this, the phosphorus issues facing our waters will be more effectively addressed collaboratively and in multiple ways.

Although the authority to regulate fertilizers resides with the Indiana Office of the State Chemist (IOSC), IDEM collaborates with the IOSC and assists when needed with questions or on issues related to water quality. And, although the IOSC's authority does not pertain specifically to individual homeowners, like the IWF, that agency is working to educate the public about the environmental benefits of using phosphorus-free fertilizers for private lawns and is developing a new certification program for companies that haul and apply commercial fertilizers, which includes commercial inorganic fertilizers and manure.

In addition to these and other ongoing efforts throughout the state to reduce the impacts of nutrients in Indiana waters and, ultimately, to the Gulf of Mexico, the Indiana State Senate recently voted to approve the bill that bans the use of phosphorus in household dishwasher detergents. The use of phosphorus in clothes washing machine detergents has been banned since 1973. Now, given the

growth in the number of dishwashers in use since that time, this ban is expected to significantly reduce the amount of phosphorus in the environment.

Comment: Dr. Tedesco of the IU Center for Earth and Environmental Sciences recommended to the legislative EQSC that Indiana consider restrictions on the use of fertilizer materials containing phosphorus. Not only do chemicals, harmful bacteria and sewage, and overly - or underly - sufficient mineral content cause harm to the flora and fauna of Indiana - and beyond - but they also threaten Indiana residents directly. Our children play in these waters, we often utilize these waterways as drinking water sources, and we have recreational interests, like boating, fishing, that are entirely dependent on the health of our streams and rivers. (HEC)

IDEM Response: IDEM's response to the previous comment applies.

Comment: IDEM should address mercury pollution in the 2010 report and list. Mercury pollution remains an ongoing problem for Indiana. Indiana's Air Pollution Control Board adopted a final Clean Air Mercury Rule (LSA #05-116) on October 3, 2007. The state rule was based on a federal mercury rule that was later struck down in federal court for failure to comply with the Clean Air Act. In 2007, U.S. EPA issued TMDL guidance, which creates a voluntary "5m alternative" for listing waters impaired by atmospheric mercury. The 5m alternative allows for the deferral of TMDLs if the state is already taking other actions in advance of TMDLs to address its mercury sources. In its 2007 guidance, U.S. EPA recommended that the state include supporting documentation for listing waters under Category 5m with its 303(d) list. The Alliance urges IDEM to adopt such a comprehensive plan for mercury and include it as part of its 2010 report and list. (AGL)

IDEM Response: At the time U.S. EPA issued its 5m guidance, IDEM's Office of Air Quality was in the process of developing a statewide mercury reduction program, which is necessary to implement the 5m approach. However, IDEM's progress in developing its plan was stalled when the federal rule that provided the underpinning for this effort – the Clean Air Mercury Rule – was invalidated by the federal courts. It should be noted that states are not required by U. S. EPA to employ a Category 5m approach in their consolidated assessment and listing processes because U. S. EPA guidance is not a statutory requirement. Upon thorough review of this approach, IDEM has determined that it cannot implement it in the 303(d) listing process until Indiana has a comprehensive mercury reduction plan in place.

The chief advantage to states with regard to the 5m approach is that U.S. EPA would allow additional time in which to develop TMDLs for mercury. However, states have received little guidance to date from U.S. EPA regarding how to develop a TMDL to restore a waterbody with elevated levels of mercury or PCBs, or both in fish tissue. Given this, IDEM has placed all fish tissue impairments in a separate category of the list (5B) until U.S. EPA issues adequate guidance for the development of a TMDL or IDEM Office of Air Quality is able to develop a statewide mercury reduction plan necessary to implement the Category 5m approach. It should be noted that, with no federal rule in place to guide its efforts, IDEM's Office of Air Quality will likely confront similar to those IDEM faces in developing TMDLs for mercury without adequate guidance from U.S. EPA.

With regard to the water quality issues related to mercury, it is IDEM's position that in order to effectively address an environmental problem, its source(s) must be adequately and accurately characterized. It is important to note that despite the difficulties associated with the development of TMDLs for mercury and a statewide mercury reduction plan and the known difficulties associated with

identifying and quantifying the specific sources of mercury in the aquatic environment, IDEM is attempting to address the mercury issue. IDEM has developed programs and initiatives to ensure that the information presently available regarding point and nonpoint sources of mercury is used effectively to reduce the amount of mercury entering state waters to the extent possible. For example, point source discharges of mercury into Indiana waters are regulated through IDEM's National Pollutant Discharge System (NPDES) in the Office. IDEM also has a number of voluntary programs and initiatives in place to help control nonpoint sources of mercury. IDEM's Mercury Awareness Program educates citizens on the environmental and health-related dangers associated with mercury and encourages reducing the use of mercury-containing devices and to properly dispose of mercury-containing items. IDEM also provides assistance to Healthcare facilities, dental offices and other facilities that use products containing mercury in developing and implementing a mercury pollutant minimization program plan. Information on mercury and IDEM's efforts to reduce mercury in the environment can be found online at: http://www.in.gov/idem/4243.htm

Comment: IDEM should ensure that the impaired waters list is accessible and comprehensible to the interested public and should consider make the 303(d) list available in an Excel spreadsheet format, which would make it easy to look up a listing by local name, county, watershed, or impairment. IDEM's list format makes it difficult to look up a beach by the local name and not the AUID. As the public is most familiar with local names, IDEM should incorporate these names in the list spreadsheet. (AGL)

IDEM Response: IDEM publishes both the draft 303(d) list and the finalized list approved by U.S. EPA on IDEM's web site and in the *Indiana Register*, which is also accessible online. Every listing cycle (two years), IDEM also presents the draft 303(d) list and CALM to the Water Pollution Control Board (WPCB) in a public hearing and presents both documents again once U.S. EPA approves the list. Each cycle and in between cycles, IDEM staff attend other meetings when invited to explain the 303(d) list and the methodology used to develop it and has also developed additional documents for its website aimed at fostering a better understanding of IDEM's 303(d) list and its 305(b) assessment and 303(d) listing methodologies.

It should be noted that IDEM has no control over the format in which the Legislative Services Agency publishes the list in the Indiana Register. With regard to its publication on IDEM's web site, IDEM can certainly publish the 303(d) listing tables in Excel spreadsheet format and has done so in previous cycles. IDEM did not publish the draft 303(d) list in this format primarily in the interestof time. However, given the need expressed by the public to have this information in a format that can be readily searched and sorted, IDEM will publish the listing tables included with the finalized 303(d) list submission IDEM's web site in an Excel format.

IDEM has debated internally in past cycles, the utility of including waterbody names on the 303(d) list. In exploring this question, IDEM has found that it is not uncommon for a single waterbody to have more than one name, which confounds efforts to achieve any consistency in naming conventions. As a result, IDEM relies instead on the AUID as the primary identifier for a given waterbody. IDEM does recognize however, that the AUID may appear arcane to the public, who presently has no way to readily identify the exact location of a given waterbody by it's AUID and has identified the need for greater accessibility of geographic information related to 303(d) listings. To address this need, IDEM is currently preparing an interactive application that will provide this information to the public via the Internet. IDEM's "e303(d)" application is expected to be available to the public this year.

With regard to its comprehensibility, it should be noted that the 303(d) listing is a technical

document developed for submission to U.S. EPA for federal approval. The general public is not the primary audience for this document. None-the-less, in the interests of creating transparency in IDEM's processes, IDEM continually strives to simplify the 303(d) listing documentation to make it more easily understood by the general public both in the narrative that accompanies the 303(d) list and the organization of information in the document.

Comment: IDEM must report on the progress of its shoreline *E. coli* TMDL, especially for beaches that experience 14 or more beach action days. The Alliance urges Indiana to include in the 2010 impaired waters report a section describing the effectiveness of the Lake Michigan shoreline TMDL in addressing pollution at individual beaches. (AGL)

IDEM Response: The TMDL provides a great deal of information about the extent and sources of impairment and the reductions necessary to restore the water(s) for which the TMDL was developed to meet its WQS. However, IDEM's authority regarding TMDL implementation is limited to permitted facilities, which may or may not be found to be contributing to the impairment. In cases where a permitted facility is contributing to an impairment, any compliance issues must be addressed and/or the NPDES permit must be reviewed and revised accordingly to ensure that the facility's discharge no longer contributes to the impairment.

In cases where there are no identified compliance issues with NPDES permitted facilities in the watershed, the impairment is due to nonpoint source pollution over which IDEM has no regulatory authority. For impairments which are nonpoint source driven, IDEM's TMDL program instead works with local watershed groups to facilitate implementation of the TMDL on the local level.

While there is no regulatory requirement for IDEM to report on the progress of TMDL implementation, IDEM is keenly interested in any successes that are achieved on the local level with regard to restoration of an impaired waterbody and would welcome any new information that the Alliance for the Great Lakes might be able to provide.

Comment: IDEM should ensure the list accurately reflects the contamination at each individual beach by eliminating possible confusion on behalf of the public regarding which beaches are safe for swimming.

IDEM Response: IDEM continues to maintain and reiterate in its CALM that the 303(d) list is not intended to be a public health advisory and should not be used as one. The issuance of public health advisories are the responsibility of the Indiana State Department of Health and county health departments. The purpose of the 303(d) list is to identify waters that fail to support one or more of their beneficial uses in keeping with the CWA. While CWA assessment and impairment decisions are based on the state's WQS, which also take into consideration human health, these decisions are not intended to be public health advisories.

With regard specifically to *E. coli* contamination, *E. coli* concentrations are highly variable and at any given beach or other waterbody can exceed WQS one day and not the next. Given this, the 303(d) list, which is developed and published every two years, cannot possibly capture accurately the relative risks associated with swimming in a given waterbody.

Comment: According to data included in the Notice of Public Comment for this matter, the general quality of the surface waters of Indiana has declined since 2008. The total number of impairments has risen from 2,682 to 2,882. Total impaired stream miles have increased from 9,569 to 13,011.The

Commissioner of IDEM shares a great deal of responsibility for this situation. You dissolved your Office of Enforcement in December 2008 – although that information does not appear to have yet been brought forward on your web site. You instituted a weak "Compliance and Enforcement Response Policy". According to a Legal Environmental Aid Foundation statement of July 2009, IDEM's enforcement changes are "inconsistent with federal guidance on protection of public health and environment." The finalization of a sufficient anti-degradation policy by IDEM has also been problematic. Several groups have petitioned the EPA to find that your draft guidelines do not meet Clean Water Act standards. Your permitting and mitigation processes have been skewed to favor polluters and to exclude public comment and scrutiny. And you have failed to come up with a rational plan to curb mercury pollution from coal-fired power plants. (GM)

IDEM Response: The reorganization of IDEM's Office of Enforcement did not result in any reduction in IDEM's enforcement capacity. The reorganization simply placed Enforcement staff in their respective areas of focus. For example, Enforcement staff that handle water quality enforcement issues were transferred into the Office of Water Quality, staff that work on air quality enforcement issues moved to the Office of Air Quality, etc. Placing enforcement staff with other program area staff that possess the various and necessary technical expertise to assist in enforcement issues has resulted in greater efficiency in cases requiring enforcement.

With regard to the development of an antidegradation policy, it should be noted that IDEM has had antidegradation implementation procedures in place for the Great Lakes Basin since the 1990s. The current effort is to expand those procedures to the entire state. Although this effort has proven to be complex and controversial, IDEM continues to make progress in the development of its Antidegradation Policy and is currently in the process of reviewing the public comments received from the second notice of public comment period. IDEM anticipates revising the rule language based on the comments received and will likely publish the draft procedures for another public comment period.

IDEM disagrees with the commenter's assertion that its permitting processes are implemented in an inappropriate or illegal manner. IDEM's permit processes follow all applicable state and federal laws and include the required opportunity for public review and comment.

With regard to the water quality issues related to mercury, it is IDEM's position that in order to effectively address an environmental problem, its source(s) must be adequately and accurately characterized. It is important to note that despite the difficulties associated with the development of a statewide mercury reduction plan and those associated with identifying and quantifying the specific sources of mercury in the aquatic environment, IDEM is attempting to address the mercury issue in Indiana's surface waters.

IDEM has developed programs and initiatives to ensure that the information presently available regarding point and nonpoint sources of mercury is used effectively to reduce the amount of mercury entering state waters to the extent possible. For example, point source discharges of mercury into Indiana waters are regulated through IDEM's National Pollutant Discharge System (NPDES) Program in the Office of Water Quality. IDEM also has a number of voluntary programs and initiatives in place to help control nonpoint sources of mercury. IDEM's Mercury Awareness Program educates citizens on the environmental and health-related dangers associated with mercury and encourages reducing the use of mercury-containing devices and to properly dispose of mercury-containing items. IDEM also provides assistance to Healthcare facilities, dental offices and other facilities that use products containing mercury in developing and implementing a mercury pollutant minimization program plan. Information on mercury and IDEM's efforts to reduce mercury in the environment can be found online at:

http://www.in.gov/idem/4243.htm.

Comment: It is indisputable that Indiana drainage code is in direct opposition to the Clean Water Act and 327 IAC 2. The primary reason is that the standard practices of County Surveyors, at least as demonstrated in Johnson County, increase water pollution and the overall degradation of water quality. Healthy streams with good water quality stay that way through natural processes where the effects of human activity are minimal, or else those processes can be enhanced when necessary, due to the adverse effects of human activity. Examples of the latter are agricultural and industrial activity and the use of waterways for treated effluent disposal. The processes that keep streams healthy and water quality good have been scientifically studied and are well understood. As are the un-natural processes which have the opposite effect. (GM)

IDEM Response: IDEM disagrees with the notion that the Indiana drainage code is in direct opposition to the Clean Water Act and 327 IAC 2. While the Indiana drainage code does give county surveyors the authority to conduct maintenance on streams, the code does not give county surveyors the authority to do any work that would violate applicable federal and state laws such as the Clean Water Act and 327 IAC 2. In order to do any maintenance activities that involve instream work such as dredging or filling, county surveyors like any other entity must apply for the appropriate state and federal permits. The drainage code does not exempt county surveyors. It is possible to do such work on streams without violating water quality standards. And, in cases where it is not, IDEM will not permit the activity.

Comment: [According to] 33 USC 1251 Sec.303(2)(A) "Whenever the State revises or adopts a new standard, such revised or new standard shall be submitted to the Administrator. Such revised or new water quality standard shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses. Such standards shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this Act." I would wager that, every time that the State has revised or adopted water quality standards, the Administrator has not been informed of the conflicts posed by Indiana drainage code. Nor has the State, in those processes, analyzed those conflicts. (GM)

IDEM Response: As noted in IDEM's response to the preceding comment, there is no conflict between the Clean Water Act and Indiana's drainage code. The Clean Water Act imposes requirements in addition to the drainage code which is why county surveyors are required to apply for a CWA Section 401 Water Quality Certification prior to doing any activity involving dredging or filling instream.

Comment: Many of Johnson County's legal drains and streams are being declared "impaired" by pollutants on a bi-annual basis when data is compiled. (Johnson County is in a region of Indiana with one of the highest percentages of impaired surface waters in the nation.) At least the two largest "legal drains" in Franklin have exceeded Total Maximum Daily Load (TMDL) for E Coli in the last two cycles, and are on the draft 2010 list as well. I would wager that if we were to test all of the county's legal drains at the same time, mid-year or so (in an expanded version of IDEM's regular sampling program), we would find that the larger ones, certainly - perhaps 8 out of 10, or more, of the total number - would exhibit low water quality and/or impairment, and those factors could be correlated with the amount of "maintenance" the "legal drain" has received. And this is obviously why the larger streams in Johnson and adjoining counties - Youngs Creek, Sugar Creek, White River, Big Blue River – are consistently

making the list: That has a great deal to do with the fact that the county's legal drains empty into them. (GM)

IDEM Response: Correlation does not equal causation. And, the connection between legal drain maintenance and water quality impairment is not necessarily obvious. While it may appear that water quality impairments are correlated to maintenance activities on legal drains, it not a foregone conclusion that the source of the impairment, particularly in the case of *E. coli*, is the maintenance of legal drains. It is possible that the complete clearing of the vegetation along the banks of stream above the high water mark – a particularly aggressive type of maintenance that does not require a permit – can hasten the delivery of *E. coli* to a surface waterbody. However, with regard to pathogens, with or without such maintenance, the sources contributing *E. coli* to the stream would still present.

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